**(Q1**)The rotor is shown in Fig. 1. The rotor is nonmagnetic and is placed in a uniform magnetic field of magnitude B0. The coil sides are of radius R and are uniformly spaced around the rotor surface. The first coil is carrying a current I1 and the second coil is carrying a current I2*.*Assuming that the rotor is 0.30 m long, R = 0.13 m, and B0 = 0.85 T, find the -directed torque as a function of rotor position for (a) 11 = 0 A and I2 = 5 A, (b) I1 = 5 A and I2 = 0 A, and (c) I1= 8 A and I2 = 8 A.



Fig.1